Abstracts

Characterization of a coherent optical RF channelizer based on a diffraction grating

Wenshen Wang, R.L. Davis, T.J. Jung, R. Lodenkamper, L.J. Lembo, J.C. Brock and M.C. Wu. "Characterization of a coherent optical RF channelizer based on a diffraction grating." 2001 Transactions on Microwave Theory and Techniques 49.10 (Oct. 2001, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1996-2001.

A coherent optical RF channelizer has been constructed and characterized. The optical channelizer is based on a free-space optical diffraction grating, and utilizes coherent optical heterodyne detection to translate all of the frequency channels to a common intermediate frequency (IF). The designed optical channelizer has a 1-GHz channel spacing, and a nominal 5-GHz IF and can offer an instantaneous bandwidth greater than 100 GHz. The channelizing receiver has been characterized for its frequency response, crosstalk, and spur-free dynamic range, and the results are in a good agreement with the theoretical values.

❑ Return to main document.